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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/660,572

Applicant(s)

SASAKI, MAKOTO

Examiner

STEVEN KAU

Art Unit

2625

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 25 April 2008.
2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
4a) Of the above claim(s) _____ is/are withdrawn from consideration.
5) ☐ Claim(s) _____ is/are allowed.
6) ☒ Claim(s) 1-20 is/are rejected.
7) ☐ Claim(s) _____ is/are objected to.
8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
10) ☒ The drawing(s) filed on 25 April 2008 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/CD/CD)
Paper No(s)/Mail Date _____
4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____

DETAILED ACTION

Response to Amendment

1. Applicant's amendment was received on 4/25/2008, and has been entered and made of record. Currently, claims 1-20 are pending.

Drawings

2. The corrected or substitute drawing of Figure 4 was received on 4/25/2008. The drawing is acceptable.

Response to Remark/Arguments

3. Applicant's arguments with respect to claims 1-20 have been fully considered but are not persuasive.

Regarding the section of "**Rejections of Claims 1, 10, 19 and 20**", page 3 of Remarks, applicant argues, "Kojima fails to disclose or suggest 'calculating a color adjustment distance, which is a distance on the color space between a representative color representing the specific region in the color image and a target color, which is target of the adjustment, on the basis of the representative color and the target color,' and 'deciding a reproduction color expressing the representative color of the specific region after the adjustment on the basis of the color adjustment distance'."

In re, the Examiner disagrees with the conclusion. With regarding to the first limitation, recites "**calculating a color adjustment distance, which is a distance on the color space between a representative color representing the specific region in the color image and a target color, which is target of the adjustment, on the basis of the representative color and the target color**", Kojima discloses five

embodiments for determining target color, and the difference, or distance between a representative color of a region, e.g. a small region and the target color. Kojima's teaching reads the claim limitation of "calculating a color adjustment distance, which is a distance on the color space between a representative color representing the specific region in the color image and a target color, which is target of the adjustment, on the basis of the representative color and the target color" in col 4, line 46 to col 5, line 5, and col 11, lines 33-40 as discussed in the office action of 1/16, 2008. Kojima divides the color space into small region for color value calculation because color image has a huge size of data and converting data of a small region can be processed at high speed (col 1, line 14 and col 2, lines 8-12). In addition, Kojima teaches how to select a target color by calculating a variance (col 4, lines 44-55) does not mean *fail* to teach "calculating a color adjustment distance, which is a distance on the color space between a representative color representing the specific region in the color image and a target color, which is target of the adjustment, on the basis of the representative color and the target color". Rather, a target color is a key element for calculating the distance between a reference color and a target color. Furthermore, calculating average of respective basic-color data of target color for dividing the region into two section (col 4, lines 38-58 and Steps S00-S101, S103 & S107 of Fig. 1) does not affect teaching "calculating a color adjustment distance, which is a distance on the color space between a representative color representing the specific region in the color image and a target color, which is target of the adjustment, on the basis of the representative color and the target color". Rather, it is necessary in the process for preparing and store the region information for the next step – calculating (deciding, adjusting) and store representative color (reproduction color) of respective sections (Fig. 1, Step S109, col 4, line 66 to col 5, line 5). With regarding to the second claim limitation, Kojima teaches "deciding (calculating step, Step S205 of Fig. 6) a reproduction color (representative colors, Step S205 of

Fig. 6) expressing the representative color of the specific region after the adjustment (calculating color difference, Step S203 of Fig 6) on the basis of the color adjustment distance” (Fig. 6, col 11, line 55 to col 12, line 30).

Applicant argues, “The Office Action also alleges that Kojima discloses a method of calculating the representative color in col. 5, line 26 - col. 6, line 49 and provides an example in Fig. 3.”

In re, the examiner disagrees the assertion. The examiner did not use or provide Fig. 3 as an example in last office action (1/16/2008). However, Fig. 3 and col 5, line 26 to col 6, line 39 describe in detail of how to calculate and select target color - again, a key element in calculating the distance between reference color to a target color.

Since Kojima teaches all claim limitations and thus, claims 1, 10, 19 and 20 are anticipated by Kojima' 704.

Regarding the section of “**Rejection of Claim 11**”, page 5 of Remarks, applicant argues, “Kojima and Hiratsuka, alone or in combination, fail to disclose or suggest ‘calculating a reproduction distance coefficient, which is used to calculate a reproduction color expressing the representative color of the specific region after color adjustment, on the basis of the color adjustment distance,’ as recited in independent claim 11.”

In re, as discussed above, Kojima teaches the claim limitations, recite, “‘calculating a color adjustment distance, which is a distance on the color space between a representative color representing the specific region in the color image and a target color, which is target of the adjustment, on the basis of the representative color and the target color,’ and ‘deciding a reproduction color expressing the representative color of the specific region

after the adjustment on the basis of the color adjustment distance". Giving the fact that Hiratsuka teaches "calculating a reproduction distance coefficient" (Figs. 1 & 2, col 11, lines 11-22 & col 3, lines 1-30) as discussed in the office action, 1/16/2008.

Applicant argues, "However, the color distance calculation equations in col. 11, lines 11-22, and col. 13, lines 10-30 are to calculate a Euclidean distance between the interpolated color and the designated color on the color space to obtain the interpolated color (Abstract). Hiratsuka uses these distances to interpolate the color adjustment in a five-dimensional table and to calculate accurate level of a reference point (lattice point) (col. 10, line 64 to col. 11, line 3)." "

In re, the examiner disagrees. "Interpolate, or interpolation is a method of constructing new data points within the range of a discrete set of known data point" (<http://en.wikipedia.org/wiki/Interpolation>). Hiratsuka teaches a process of calculating a reproduction distance coefficient with a mathematic approach does not mean fail to teach the claim limitation "calculating a reproduction distance coefficient", rather, he provides a well-established process of calculating a reproduction distance coefficient.

Thus, having a color processing apparatus of Kojima's 704 reference and a well-established teaching of calculating a reproduction distance coefficient provided by Hiratsuka's 441 reference, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the color process apparatus of Kojima's 704 reference to include calculating a reproduction distance coefficient as taught by Hiratsuka's 441 reference, since doing so would improve color adjust process at high speed and high accuracy (col 10, lines 62 to col 11, line 6, Hiratsuka), and further the calculating a reproduction distance coefficient provided could be implement able for one another with predictable results.

Since claims 1, 10, 19 and 20 are anticipated by Kojima' 704 and claim 11 is taught by the combination of Kojima' 704 and Hiratsuka' 441, the rejection ground to this application is maintained and the prosecution of this application is made final in this office action.

Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993). The examiner also references the applicant to the claims rejection section below for the explanation on how the prior art references read on the amended claims.

Double Patenting

4. Claim 20 is objected to under 37 CFR 1.75 as being a substantial duplicate of claim 10. When two claims in an application are duplicates or else are so close in content that they both cover the same thing, despite a slight difference in wording, it is proper after allowing one claim to object to the other as being a substantial duplicate of the allowed claim. See MPEP § 706.03(k).

With regard to claim 20, recites, "printer comprising: a color processing device for adjusting colors of a specific region, which is a subject of the adjustment in a color image, wherein the color processing apparatus includes: a color adjustment distance calculation section for calculating a color adjustment distance, which is a distance on a color space between a representative color representing the specific region in the color image and a target color, which is target of the adjustment, on the basis of the representative color and the target color; and a reproduction color decision section for deciding a reproduction color expressing the representative color of the specific region after the adjustment on the basis of the color

adjustment distance, wherein the reproduction color is located between the representative color and the target color", covers substantially the same limitations of claim 10. Thus claim 20 is objected to for claim duplication.

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

6. Claims 1, 8-10 and 17-20 are rejected under 35 U.S.C. 102(a) as being anticipated by Kojima et al (Kojima) (US 6,917,704).

Regarding claim 1.

Kojima discloses a color processing method for adjusting colors of a specific region (**Fig 14, col 4, lines 20-65**), which is a subject of the adjustment in a color image (**col 4, lines 20-65**), the color processing method comprising: calculating a color adjustment distance (**col 2, lines 54-65 and col 11, lines 33-64**), which is a distance (**e.g. Euclidean distance**) on a color space (**RGB color space of Fig. 14**) between a representative color representing the specific region in the color image (**a small region of a picture element at coordinates (0, 0), col 4, lines 66 through col 5, line 5 & col 11, lines 33-64 and Figs 1 & 6**) and a target color (**col 5, lines 64 through col 6, line 2**), which is target of the adjustment, on the basis of the representative color and the target color (**col 11, lines 33 through col 12, line 36**); and deciding (**calculating**) a reproduction color (**e.g. representative colors, Step S205 of Fig. 6**) expressing the

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representative color of the specific region after the adjustment (**calculating color difference, Step S203 of Fig 6**) on the basis of the color adjustment distance (**Fig. 6, col 11, line 33 to col 12, line 36**), wherein the reproduction color is located between the representative color and the target color (e.g. **Kojima discloses a process to determine the reproduction color(s) between the representative color and the target color, for example, when $N_x=1$, no representative color extraction is processed since there is no dividing executed; thus the same average color data value becomes reference color or reproduction color; when $N_x>1$, the process will continued according to Fig. 6 and Fig. 1 to obtain reproduction color between representative color and target color, col 11 line 33 to col 12, line 36**).

Regarding claims 10, 19 and 20.

Claims 10, 19 and 20 recite identical features as claim 1, except claim 10 is an apparatus claim, and claim 19 is a computer program storage medium claim, and claim 20 is a printer. Thus, arguments similar to that presented above for claim 20 are also equally applicable to claims 1, 10 and 19.

Regarding claim 17.

Kojima discloses wherein the target color is a color having the same color component ratio as that of the representative color ("the variance of respective basic -color data corresponding to the picture elements is calculated (Step S103). At this time, the simple method of calculating the variance is to accumulate all absolute values of the difference between the average and the color data of respective picture elements. And the color having the maximum of variance is detected, and determined as a target color." A person of ordinary skill of the art

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understands target color is having the same color component ratio as that of the representative color. (col 4, lines 38-55).

Regarding claim 18.

Kojima discloses a color adjustment unit (e.g. Representative Color extracting Circuit of Fig. 2) for adjusting the colors of the specific region toward the reproduction color (col 6, lines 51 through col 7, line 61).

Regarding claim 8.

Claim 8 recites identical features as claim 17, except claim 8 is a method claim. Thus, arguments similar to that presented above for claim 17 are also equally applicable to claim 8.

Regarding claim 9.

The structure elements of method claim 1 perform all steps of claim 9. Thus claim 9 is rejected under 103(a) for the same reason discussed in the rejection of claim

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claims 7 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kojima et al (Kojima) (US 6,917,704) in view of Caruthers et al (Caruthers) (US 6,575,096).

Regarding claim 16.

Kojima discloses wherein the target color is one of a given color (e.g. from a region of a picture element), a color selected from a plurality of colors (col 4, lines 20-65).

Kojima does not expressly teach that the target color is a color having a predetermined color component ratio.

Caruthers teaches that the target color is a color having a predetermined color component ratio (col 14, lines 26-36 and line 64 through col 15, line 3).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to have modified Kojima to include the target color is a color having a predetermined color component ratio taught by Caruthers to improve printed color and as an example, to produce significantly less glossy than paper used in the Pantone.RTM (col 14, lines 64 through col 15, line 3).

Regarding claim 7.

Claim 7 recites identical features as claim 16, except claim 7 is a method claim. Thus, arguments similar to that presented above for claim 16 are also equally applicable to claim 7.

9. Claims 2, 3, 6, 11, 12 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kojima et al (Kojima) (US 6,917,704) in view of Hiratsuka et al (Hiratsuka) (US 6,108,441).

Regarding claim 11.

Kojima discloses a color processing apparatus (e.g. **col 2, lines 8-11 and Fig. 10**) for adjusting colors of a specific region (**Fig. 14, col 4, lines 20-65**), which is a subject of the adjustment in a color image (**col 4, lines 20-65**), the color processing apparatus comprising: a

color adjustment distance calculation section (Figs. 1 & 6) for calculating a color adjustment distance (col 2, lines 54-65 and col 11, lines 33-64), which is a distance on a color space (RGB color space of Fig. 14) between a representative color representing the specific region in the color image (a small region of a picture element at coordinates (0, 0), col 4, lines 66 through col 5, line 5 & col 11, lines 33-64 and Figs 1 & 6) and a target color (col 5, lines 64 through col 6, line 2), which is target of the adjustment, on the basis of the representative color and the target color (col 11, lines 33 through col 12, line 36, and Figs. 1 and 6), a reproduction color calculation unit for calculating the reproduction color (Fig. 2, col 6, line 48 to col 7, line 61 and so on).

Kojima differs from claim 11, in that he does not expressly teach a reproduction distance coefficient calculation unit for calculating a reproduction distance coefficient, which is used to calculate a reproduction color expressing the representative color of the specific region after color adjustment.

Hiratsuka teaches a reproduction distance coefficient calculation unit (Figs. 1, 2 & 3) for calculating a reproduction distance coefficient (e.g. luminosity, chroma and hue parameters), which is used to calculate a reproduction color expressing the representative color of the specific region after color adjustment (col 11, lines 11-40 & col 13, lines 10-30); and a reproduction color calculation unit for calculating the reproduction color on the basis of the reproduction distance coefficient (Figs. 1-3, col 11, lines 11-40 & col 13, lines 10-30).

having a color processing apparatus of Kojima's 704 reference and a well-established teaching of calculating a reproduction distance coefficient provided by Hiratsuka's 441 reference, it would have been obvious to one having ordinary skill in the art at the time the invention was

made to modify the color process apparatus of Kojima's 704 reference to include a reproduction distance coefficient calculation unit for calculating a reproduction distance coefficient, which is used to calculate a reproduction color expressing the representative color of the specific region after color adjustment as taught by Hiratsuka's 441 reference, since doing so would improve color adjust process at high speed and high accuracy (col 10, lines 62 to col 11, line 6, Hiratsuka), and further the calculating a reproduction distance coefficient provided could be implement able for one another with predictable results.

Regarding claim 2.

Kojima discloses the calculation of the reproduction color, and the reproduction color is calculated on the basis of the color adjustment distance (col 11, lines 33-40).

Kojima does not expressly teach calculating a reproduction distance coefficient, which is used to calculate the reproduction color, wherein: the reproduction distance coefficient.

Hiratsuka teaches calculating a reproduction distance coefficient, which is used to calculate the reproduction color, wherein: the reproduction distance coefficient (col 11, lines 11-22 & col 13, lines 10-30).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to have modified Kojima to include calculating a reproduction distance coefficient, which is used to calculate the reproduction color, wherein: the reproduction distance coefficient taught by Hiratsuka because color adjustment involves many parameters, such as luminosity parameter, chroma parameter and hue parameter, and these color distance coefficient are used to improve color adjustment process in high speed and high accuracy (col 10, lines 62 through col 11, line 6).

Regarding claim 3.

Kojima discloses calculating a brightness adjustment coefficient, which is used to adjust brightness of the reproduction color, on the basis of the representative color, in the calculation of the reproduction color, the reproduction color is calculated on the basis of the color adjustment distance and the brightness adjustment coefficient (col 13, lines 33-65).

Kojima differs from claim 3, in that he does not expressly teach that the reproduction color is calculated on the basis of the reproduction distance coefficient.

Hiratsuka teaches that the reproduction color is calculated on the basis of the reproduction distance coefficient (col 11, lines 11-22 & col 13, lines 10-30).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to have modified Kojima to include that the reproduction color is calculated on the basis of the reproduction distance coefficient taught by Hiratsuka because color adjustment involves many parameters, such as luminosity parameter, chroma parameter and hue parameter, and these color distance coefficient are used to improve color adjustment process in high speed and high accuracy (col 10, lines 62 through col 11, line 6).

Regarding claim 12.

The structure elements of apparatus claim 11 perform all steps of claim 12. Thus claim 12 is rejected under 103(a) for the same reason discussed in the rejection of claim 11.

Regarding claim 15.

The structure elements of apparatus claim 11 perform all steps of claim 15. Thus claim 15 is rejected under 103(a) for the same reason discussed in the rejection of claim 11.

Regarding claim 6.

Claim 6 recites identical features as claim 15, except claim 6 is a method claim. Thus, arguments similar to that presented above for claim 15 are also equally applicable to claim 6.

1. Claims 13 and 4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kojima et al (Kojima) (US 6,917,704) in view of Hiratsuka et al (Hiratsuka) (US 6,108,441) as applied to claims 3 and 12 above, and further in view of Kim et al (Kim) (US 2002/0090133).

Regarding claim 13.

Kojima discloses wherein the brightness adjustment coefficient calculation unit (Figs. 2-9) calculates the brightness adjustment coefficient on the basis of at least one of brightness (col 13, lines 33-65).

Kojima differs from claim 13, in that he does not teach color saturation and hue of the representative color.

Kim teaches that color saturation and hue of the representative color (Figs. 1 & 2, Para. 0032).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to have modified Kojima to include color saturation and hue of the representative color taught by Kim to precisely measure in a color space and to overcome color adjustment problems such as used to separate an object included in an image from background of the image is that if two pixels of the same hue in an area of an object have different brightness and saturation components, they are treated as different color image (Paras 0005 and 0010).

Regarding claim 4.

Claim 4 recites identical features as claim 13, except claim 4 is a method claim. Thus, arguments similar to that presented above for claim 13 are also equally applicable to claim 4.

10. Claims 5 and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kojima et al (Kojima) (US 6,917,704) in view of Hiratsuka et al (Hiratsuka) (US 6,108,441) as applied to claims 3 and 12 above, and further in view of Matsugu (US 2002/0044691).

Regarding claim 14.

Kojima discloses a differentiable and continuous function of the color adjustment distance (Fig. 5, col 8, lines 54-60 & col 11, lines 26-50).

Kojima does not expressly teach wherein the reproduction distance coefficient calculation unit calculates the reproduction distance coefficient in accordance with one of a monotone decreasing function of the color adjustment distance.

Matsugu teaches wherein the reproduction distance coefficient calculation unit calculates the reproduction distance coefficient in accordance with one of a monotone decreasing function of the color adjustment distance (Paras 0413 & 0423).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to have modified Kojima to include the reproduction distance coefficient calculation unit calculates the reproduction distance coefficient in accordance with one of a monotone decreasing function of the color adjustment distance taught by Matsugu to control coefficient parameters such as luminance, variation amount of gains and gamma characteristics, etc. Para 0412 & 0413).

Regarding claim 5.

Claim 5 recites identical features as claim 14, except claim 5 is a method claim. Thus, arguments similar to that presented above for claim 14 are also equally applicable to claim 5.

Conclusion

11. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Steven Kau whose telephone number is 571-270-1120 and fax number is 571-270-2120. The examiner can normally be reached on Monday to Friday, from 8:30 am -5:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, King Poon can be reached on 571-272-7440. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/Steven Kau/
Examiner, Art Unit 2625
7/28/2008

/King Y. Poon/
Supervisory Patent Examiner, Art Unit
2625